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A new subspecies of *Cucullia tecca* Püngeler, 1906 from northern Kyrgyzstan and southern Kazakhstan (Lepidoptera: Noctuidae)

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Abstract. The article discusses a new subspecies of *Cucullia tecca* Püngeler, 1906 — *C. tecca poltavskyi* **ssp. n.** from northern Kyrgyzstan and the border territory of southern Kazakhstan. The specimens belonging to the new subspecies differ from the specimens of the nominative subspecies by a less contrasting color of the forewings and, sometimes, by the bluish tint of their background. The new subspecies have a noticeable difference in the structure of male genitalia. Unlike the uniformly wide valva of males of the nominative subspecies, the shape of the valva of the new subspecies is narrowed in the center. The females of the new subspecies and the structure of their genitalia is still unknown. The specimens of the new subspecies were collected in April at the altitude of 800–1000 m in dry steppes. The closest areas where moths belonging to the nominative subspecies were found are the mountains in northwestern Tajikistan.

Keywords: Noctuidae, Cucullia tecca, new subspecies, taxonomy, Kyrgyzstan, Kazakhstan

Новый подвид *Cucullia tecca* Püngeler, 1906 из Северного Кыргызстана и Южого Казахстана (Lepidoptera: Noctuidae)

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Аннотация. Описан новый подвид *Cucullia tecca* Püngeler, 1906 — *C. tecca poltavskyi* **ssp. n.** с территории Северного Кыргызстана и приграничной территории Южного Казахстана. Экземпляры, принадлежащие к новому подвиду, отличаются от экземпляров номинативного подвида менее контрастной окраской передних крыльев и иногда голубоватым оттенком фона передних крыльев. В строении гениталий самцов нового подвида заметным отличием является форма вальвы, суженной в центральной части в отличие от вальвы у самцов номинативного подвида, имеющей равномерную ширину. Самки и строение их гениталий у нового подвида пока неизвестны. Особи нового подвида собраны на свет в апреле на высотах 800–1000 м н. у. м. в сухих степях. Ближайшие места находок особей номинативного подвида находятся в горах северо-западного Таджикистана.

Ключевые слова: Noctuidae, *Cucullia tecca*, новый подвид, систематика, Кыргызстан, Казахстан

Introduction

Cucullia Schrank, 1802 is a large genus belonging to subfamily Cuculliinae with a worldwide distribution (except the Australian Region) and contains over 100 species in Palaearctic (Ronkay, Ronkay 2009). Fauna of *Cucullia* in Eurasia is well-studied in comparison with many other Noctuidae genera and no new taxa have been described from Central Asia since the latest revision (Ronkay, Ronkay 2009). However, recent materials collected by the second author in Kyrgyzstan and Kazakhstan contained specimens of *Cucullia* which are very similar to *Cucullia tecca* Püngeler, 1906. The small differences concern the pattern of the forewings and structure of genitalia. In addition, the places were these specimens of *Cucullia* were found are very far from those known earlier for *C. tecca* in Central Asia. Thus, we decided that these facts could be sufficient arguments for describing a new subspecies of *C. tecca* from this territory.

Material and methods

We explored 47 specimens of *C. tecca* deposited in the collections of the Museum für Naturkunde Leibniz-Institut für Evolutions- und Biodiversitätsforschung (Berlin, Germany) (further ZMHU), the Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia) (further ZISP) and the collection of the second author, S. K. Korb (Bishkek, Kyrgyzstan) (further SK). The preparation of the genitalia was carried out according to standard methods described by various authors (see, for example, Kononenko, Han 2007). The moths were photographed with Canon EF and Canon PowerShot A495 cameras. The genitalia were photographed with the microscope camera Nikon DS-Ri2 attached to the stereo microscope Nikon SMZ25 and Camera EOS 5D Mark II attached to the microscope MS-VP Lomo. The photo processing was carried out using Adobe Photoshop CS3 and CC, NIS-Elements, and Helicon Focus.

Taxonomic part

Cucullia tecca Püngeler, 1906

Cucullia tecca Püngeler, 1906, *Deutsche Entomologische Zeitschrift Iris* 19: 96, pl. 8, Fig. 4. Type locality: [Turkmenistan]: Aschabad.

Cucullia santolinae var. *caucasica* Sohn-Rethel, 1929, *Deutsche Entomologische Zeitschrift Iris* 43: 10. Type locality: Azerbaijan: Aresh. Synonymized by Ronkay Ronkay (2009).

Material. Syntypes: 1♂, 2♀, Central Asia, Aschabad (coll. ZMHU). 2♂: Georgia, Vashlovani Reserve, Eldari, 1981 (N. Korastolev), preparate of A. Nekrasov ♂ no. 502a (coll. ZISP). 3♂: Armenia, Erivan, 20.04.-10.05.1936 (Yzmailov) (coll. ZISP). 1♂: Armenia, Mount Agorok, 18.04.1998 (Agabegyan) (coll. ZISP). 1♂: Armenia, Khosrov Reserve, 22.04.1984 (P. Kazaryan) (coll. ZISP). 1♂: Azerbaijan, Ordubad ([G. Christoph]), preparate of M. Rjabov no. 6178 (coll. ZISP). 1♀: Turkmenistan, vicinity of Ashkhabad, 17.03.1955 (V. Potopolskij) (coll. ZISP). 5♂: Turkmenistan, vicinity of Ashkhabad, 10.06.1980 (V. Isakov), slide no. Matov0644 (coll. ZISP). 2♀: Turkmenistan, Kara-Kala, garden of VIR, 12.04.1953 (V. Kuznetsov) (coll. ZISP). 3♂: Turkmenistan, Kara-Kala, 30.03.1990 (D. Obydov) (coll. ZISP). 1♂, 2♀: Turkmenistan, Kara-Kala, 28-30.03.1990 (M. Danilevskij) (coll. ZISP). 1♀, Turkmenistan, vicinity of Kara-Kala, Parkhay, 16.04.1983 (E. Mimonov) (coll. ZISP). 1♂: Turkmenistan, Kopet-Dagh, Firyuza, 2.04.1991 (V. Dubatolov) (coll. ZISP). 2♂, 1♀: Turkmenistan, Badkhyz, Morgunovskij, at light, 21–25.03.1979, 19.03.1982 (V. Pechen), preparate of A. Nekrasov ♂ no. 502v (coll. ZISP).

Description. **Moth** (Figs. 1–2). Wingspan — 35–37 mm. Head and thorax grey, abdomen greyish-brown. Ground color of the forewing is grey or brownish-grey with numerous light yellowish-grey longitudinal strokes between veins, 4–5 dark brown longitudinal strokes near the outer margin and a long black longitudinal stroke near the base of the wing. The two medial lines are dark grey with very strong curves and are very close to each other

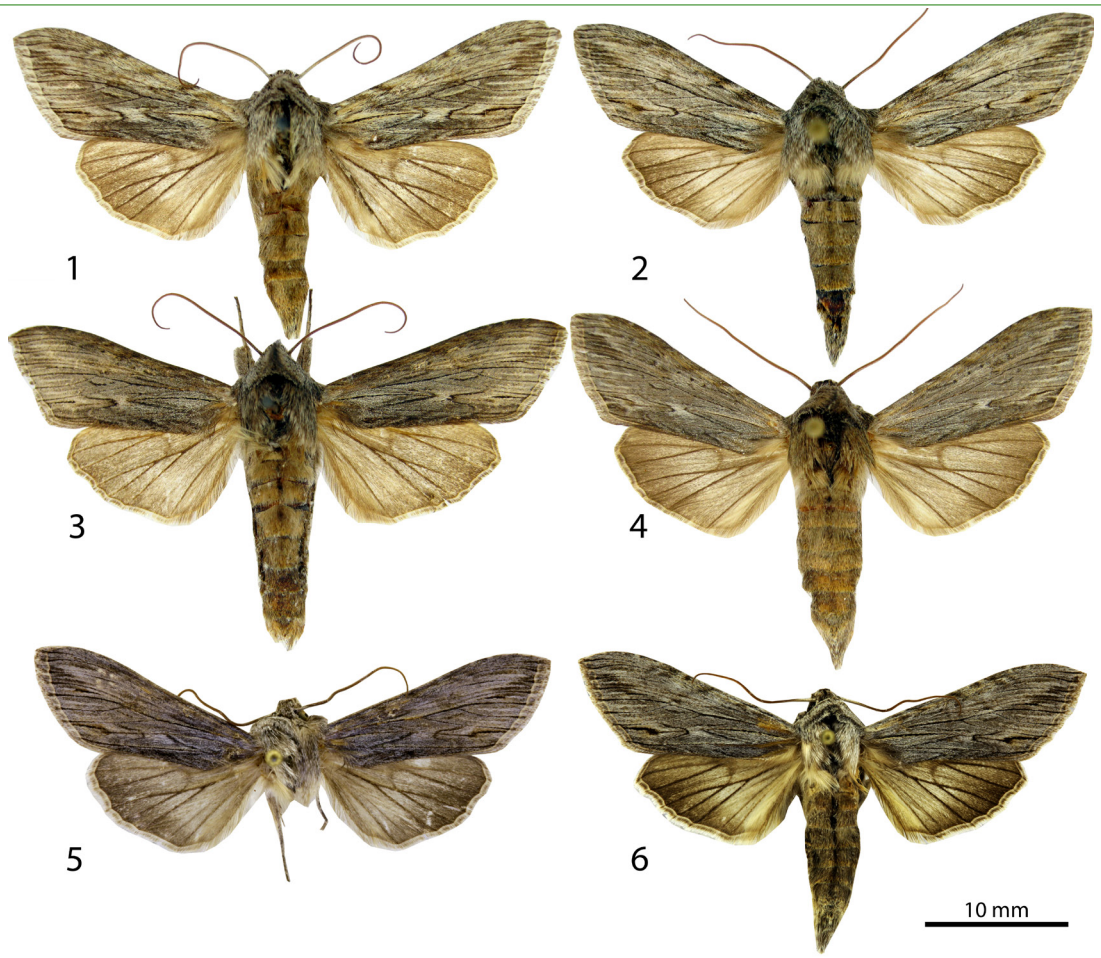

Fig. 1–7. *Cucullia* sp.: *1* — *Cucullia tecca tecca* Püngeler, 1906, male, Turkmenistan, Askhabad env.; *2* — *Cucullia tecca tecca* Püngeler, 1906, male, Turkmenistan, W Kopet-Dagh, Kara-Kala; 3 — *Cucullia calendulae* Treitschke, 1835, male, Turkmenistan, Askhabad env.; *4* — *Cucullia calendulae* Treitschke, 1835, male, Turkmenistan, W Kopet-Dagh, Kara-Kala; 5 — *Cucullia tecca poltavskyi* Matov et Korb, **ssp. n.**, holotype, male; 6 — *Cucullia tecca poltavskyi* Matov et Korb, **ssp. n.**, paratype, male; 7 — Habitat of *Cucullia tecca poltavskyi* Matov et Korb, **ssp. n.**, type locality (Kyrgyzstan, Bishkek environs, Kok-Jar, h=900 m). *1–4* — photo by A.Yu. Matov; *5–7* — photo by S. K. Korb

Рис. 1–7. *Cucullia* sp.: *1* — *Cucullia tecca tecca* Püngeler, 1906, самец, Туркменистан, окр. Асшхабада; *2* — *Cucullia tecca tecca* Püngeler, 1906, самец, Туркмения, З Копет-Даг, Кара-Кала; *3* — *Cucullia calendulae* Treitschke, 1835, самец, Туркменистан, окр. Ашхабада; *4* — *Cucullia calendulae* Treitschke, 1835, самец, Туркмения, З Копет-Даг, Кара-Кала; *5* — *Cucullia tecca poltavskyi* Matov et Korb, ssp. n., голотип, самец; 6 — *Cucullia tecca* poltavskyi Matov et Korb, **ssp. n.**, паратип, самец; *7* — местообитание *Cucullia tecca poltavskyi* Matov et Korb, **ssp. n.**, типовая местность (Кыргызстан, окрестности Бишкека, Кок-Жар, h=900 м). *1–4* — фото А. Ю. Матова; *5–7* — фото С. К. Корба

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in the medial field of the wing below the reniform spot. The reniform spot is brownish-grey, blurry. Hindwing greyish-brown, darker near the outer margin.

Male genitalia (Figs. 10–11). Uncus strong, slightly curved at the tip. Tegumen moderately broad. Valva elongated, narrow, slightly curved upwards distally; clavus thin, curved; corona present. Harpe thin, asymmetrical — left harpe with a pointed tip, right harpe with a rounded tip. Juxta large, wide. Aedeagus moderately long; carina with two narrow sclerotized ribbons; vesica consists of 4 basal diverticula various in size and shape, armed with 2 strong bulbed cornuti slightly different in length and has an upturned sac terminating in a pointed tip; there is a broad sclerotised ribbon around the base of the distal diverticulum armed by rows of numerous small spines.

Female genitalia. Ovipositor short; apophyses anteriores are slightly shorter than apophyses posteriores. Ostial part with a V-shaped ligula. Ductus bursae is relatively short with sclerotized crests on its surface. Bursa copulatrix large, membranous, ovoid in shape.

Diagnosis. *C. tecca* is very similar to *C. calendulae* Treitschke, 1835 (Figs. 3–4), the species also found in Central Asia (Turkmenistan). It differs externally from *C. calendulae* by a smaller size, wider forewings, less clear contours of the reniform spot, and a more variegated groundcolor of the forewings. In the male genitalia *C. tecca* differs from *C. calendulae* by a thin and longer harpe, shorter clavus; in the female genitalia by the shape and position of the proximo-lateral appendage of ductus bursae.

Fig. 8–11. *Cucullia* sp.: *8* — *Cucullia tecca poltavskyi* Matov et Korb, **ssp. n.**, male genitalia, frontal view, aedeagus removed, holotype, preparate no. KORB193; *9* — *Cucullia tecca poltavskyi* Matov et Korb, **ssp. n.**, male genitalia, aedeagus, holotype, preparate no. KORB193; *10* — *Cucullia tecca tecca* Püngeler, 1906, male genitalia, frontal view, aedeagus removed, Turkmenistan, Askhabad env., slide no. Matov0644; *11* — *Cucullia tecca tecca* Püngeler, 1906, male genitalia, aedeagus, Turkmenistan, Askhabad env., slide no. Matov0644. *8-9* — photo by S. K. Korb; *10-11* — photo by A.Yu. Matov

Рис. 8–11. *Cucullia* sp.: *8* — *Cucullia tecca poltavskyi* Matov et Korb, **ssp. n.**, гениталии самца, вид спереди, эдеагус удален, голотип, препарат №. KORB193; *9* — *Cucullia tecca poltavskyi* Matov et Korb, **ssp. n.**, гениталии самца, эдеагус, голотип, препарат №. KORB193; *10* — *Cucullia tecca tecca* Püngeler, 1906, гениталии самца, вид спереди, эдеагус удален, Туркменистан, окр. Ашхабада, препарат №. Matov0644; *11* — *Cucullia tecca tecca* Püngeler, 1906, гениталии самца, эдеагус, Туркменистан, окр. Ашхабада, препарат №. Matov0644. *8-9* — фото С. К. Корба; *10-11* — фото А.Ю. Матов

Taxonomic note. Ronkay, Ronkay (2009) stated incorrectly that the type series of *C. tecca* consists of holotype only, stored in ZMHU; according to the original description, the type series of this taxon consists of "1 ♂, 2 ♀♀" (Püngeler 1906). Syntypes are deposited in the Museum für Naturkunde Leibniz-Institut für Evolutions- und Biodiversitätsforschung (Berlin, Germany) (examined by the second author). Until now, two subspecies have been described: *C. tecca tecca* and *C. tecca pallidisripta* Ronkay et Ronkay, 1988 (type locality: Malatya, Turkey).

Distribution. *C. tecca tecca* is distributed from the Caucasus and Transcaucasia (Georgia, Armenia, Azerbaijan) to high mountains of northern Iran, the Kopeth Dagh Mts. (Turkmenistan and Iran) and the Hissar Mts. in Uzbekistan and Tadjikistan (Kalali 1976; Kühne 1998; Poltavsky et al. 1998; Hassanyar 2006; Ronkay, Ronkay 2009; Shahreyari-Nejad et al. 2020; Benedek et al. 2021), *C. tecca pallidiscripta* is distributed in central and south-eastern Turkey and the Near East (Ronkay, Ronkay 2009).

Cucullia tecca poltavskyi Matov et Korb, **ssp. n.**

Fig. 5–6

https://zoobank.org/References/3F52339F-3ACF-4185-90A1-8F53A2DAC37B

Material. Holotype: ♂, Kyrgyzstan, Bishkek environs, Kok-Jar, h = 900 m, 17.04.2022 (S. Korb), preparate no. KORB193 (coll. ZISP). Paratypes: 7♂, same locality, 24.04.2016, 21.04.2019, 17.04.2022 (S. Korb) (coll. SK); 3♂, South Kazakhstan, near the border between Kyrgyzstan and Kazakhstan, Kordai environs, h = 800 m, 20.04.2019 (S. Korb) (coll. SK); 3♂, Kazakhstan, the Zhety-Zhol Mts., Ulken-Sulutor village environs, Krasnogorka, h = 1000 m, 15–25.04.2015 (P. Egorov) (coll. SK).

Description. Moth and male genitalia (Figs. 8–9). Generally the same as in *C. tecca* above.

Female genitalia. Unknown.

Diagnosis. *C. tecca poltavskyi* ssp. n. differs from *C. tecca tecca* by a much less contrast in the wing pattern which consists of thin black or blackish lines and strokes as opposed to that in the nominate subspecies — lines and strokes in the nominate subspecies are wider, especially in the apical part of the forewing. Some specimens of *C. tecca poltavskyi* ssp. n. have a bluish tint on the ground color of the forewings which is not found in specimens of the nominate subspecies. The forewings of *C. tecca tecca* are narrower than in the new subspecies. *C. tecca poltavskyi* ssp. n. differs from *C. tecca pallidiscripta* by a much darker ground color (in the new subspecies it is grey, in *C. tecca pallidiscripta* light-grey, hindwing in some specimens almost white). The male genitalia valvae of C. *tecca poltavskyi* ssp. n.

Fig. 12. Distribution of *Cucullia tecca tecca* and *C. tecca poltavskyi* ssp.n. according to our own and the literature data. Black circles — finding places of *C. tecca tecca* according to our data, white circles and white squares — finding places of *C. tecca tecca* according to the literature data; black squares — finding places of the new subspecies

Рис. 12. Распространение *Cucullia tecca tecca* и *C. tecca poltavskyi* ssp.n. по нашим и литературным данным. Черные кружки — места нахождения *C. tecca tecca* по нашим данным, белые кружки и белые квадраты — места нахождения *C. tecca tecca* по литературным данным; черные квадраты — места нахождения нового подвида

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are narrower in the central part than in the other subspecies.

Etymology. The name of the subspecies is a commemoration to the great Noctuoidea expert who passed away a three years ago, Alexandr Nikolayevich Poltavsky (1954–2020). He studied the fauna of Central Asia, the Caucasus and other regions.

Distribution. The distribution of the new subspecies known to us now is limited to a small territory in the mountains of south-eastern Kazakhstan and northern Kyrgyzstan. It is very possible, however, that the populations living in the Hissar mountains also belong to the new subspecies or to another subspecies which has not yet been described (Fig. 12).

Ecology (Fig. 7). Moths of the new subspecies were collected with UV-light traps in Mid-Late April at the altitude of 800–1000 m. The biotopes are dry steppe slopes with mainly Poaceae and bushes of wild *Rosa*.

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